

# LOUIE CAI

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I am an undergraduate student at UC San Diego studying Data Science with a strong foundation and interest in machine learning, software development, and data analysis, enhanced by practical experience through internship and projects.

## EDUCATION

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**University of California, San Diego, Data Science B.S.**

**Sept 2020 – Dec 2024**

- **GPA:** 3.7
- **Minor:** Computer Engineering
- **Relevant Coursework:** Machine Learning, Deep Learning, NLP, Data Analysis, Computer Organization and Systems Programming, Data Structures & Object-Oriented Design, Differential Equations, Linear Algebra, Probability and Statistics, Discrete Mathematics, Components and Design Techniques for Digital Systems

## EXPERIENCE

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**Amazon**

**Jun – Sept 2024**

**Software Development Engineer Intern (In Progress)**

- Working on a full-stack project for the team

**UC San Diego**

**Sept 2023 – June 2024**

**CSE Tutor (CSE 8A, CSE 140L)**

- Held office hours and helped students with their questions
- Automated the calculation of class grades with Python scripts
- Performed TA duties: designing and creating programming assignments and exams

**Amazon**

**Jun – Sept 2023**

**Software Development Engineer Intern**

- Utilized React and TypeScript to streamline backend database onboarding with a front-end internal tool.
- Collaborated in an Agile team to ensure responsive and user-friendly interfaces.
- Reduced the onboarding process from 2-3 days to several hours through streamlining with this tool

## PROJECTS

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**Convolutional Neural Network Image Classification ([Analysis](#))**

**Feb 2022**

- Engineered custom convolutional neural networks using PyTorch to classify 20 distinct categories of food images.
- Led the development and training of the neural network with PyTorch and CUDA, systematically refining network performance through architectural adjustments and hyperparameter tuning.
- Visualized and conducted in-depth analysis of feature maps and filters using Matplotlib.

**Minecraft Mod Development ([GitHub](#))**

**Jun – Dec 2020**

- Achieved over **2.9 million** downloads on [CurseForge](#) for the Minecraft plugin developed.
- Engineered a plugin to enhance the player experience in Minecraft by introducing interactive in-game items.

## ACTIVITIES

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**IEEE F1TENTH IV2023 Championship - Anchorage ([Website](#))**

**Jun 2023**

- Constructed two autonomous 1/10 scale RC cars, each equipped with LiDAR sensors and cameras, enabling precise navigation on a racetrack.
- Led the development of advanced navigation algorithms using ROS2 and DonkeyCar.
- Represented UC San Diego and secured fourth place in the championship.

## SKILLS

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- **Programming Languages:** Python, R, SQL, HTML, CSS, Typescript, Java, System Verilog, C, C++, C#, Bash,
- **Machine Learning/Big Data:** Machine Learning, Deep Learning, pandas, NumPy, matplotlib, scikit-learn, PyTorch, BeautifulSoup4, Request, Selenium, Plotly, FastAPI
- **Framework/Tools:** React, JavaFX, Unity, Linux, Docker, Gradle, Valgrind, Vim, Git, Jupyter, Verilator, Blender